

# SCARRING INFILTRATIONS IN SINGLE INJECTIONS. NEUROSURGERY, ENT, THORACIC, ABDOMINAL AND PELVIC SURGERY

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## 1- INTRODUCTION

Scarring is an analgesic technique local. It involves administering an analgesic agent (the most frequently a local anesthetic, but these may be NSAIDs or opiate's) directly into the banks of a scar surgical or remote to block the transmission painful impulses by the distal nerve endings. Some infiltration techniques are commonly used 'Block' [BII] or the superficial cervical plexus block) while is to inject the analgesic agent without locating location nervous system in a space of diffusion where located the distal endings of the nerves involved in the sensitivity of the region, which is consistent with the definition of local infiltration. Infiltration techniques constitute an alternative to other loco regional analgesia techniques such as nerve blocks and analgesia. They are embedded in a strategy of multimodal burden of acute postoperative pain. This The purpose of the chapter is to present the indications and postoperative period different recommendations on infiltration techniques local operations site.

## 2- INFILTRATION IN NEUROSURGERY

Local infiltration of bupivacaine or procaine was used on craniotomy scars [1-3]. Two studies show modest, short-term analgesic efficacy duration (one to two

hours postoperatively) or the painful intensity [2], or on the consumption of morphine [3]. In a comparative study, ropivacai 0.75% and 0.375% bupivacaine appear to be equivalent, but the size of the workforce is too small to conclude formally [3]. Study shows local infiltration pre-incident of 25 mL of 0.25% bupivacaine presents no significant interest for post topic analgesia (Apart from a longer period for the first request for analgesic) [1]. In this work, patients from Witness group received a powerful analgesia, including an NSAID, which may explain the lack of benefit in the infiltrated group.

The cicatrice infiltration of local anesthetic in this indication is often made before the incision to improve the preoperative hemodynamic stability. To this end, Bupivacaine infiltration has always been effective (same efficacy as 2 mg / kg intravenous fentanyl) [2,4].

Desorption of the local anesthetic from scars of craniotomy is rapid (peak plasma concentration in 15 minutes), which should encourage caution on doses employed [4].

### 3- INFILTRATION FOR TONSILLECTOMY

Local infiltrations were evaluated for analgesia after tonsillectomy [5-19]. Most of the works (12/15) find a benefit analgesic to the infiltration of the boxes Ton seller [5-14,17,19], ranging from the first hours postoperative, up to several days for pain deglutition (Table 2) [6,9,13]. Overall, it appears that tonsillectomy is more painful in adults than in children, explaining a better efficiency of infiltration techniques in the adult population [15]. Some studies have shown infiltration after tonsillectomy report disappointing results, which appear to be less good if the infiltration is done before the operation [20], but the Majority of the work shows no difference between pre- and postoperative infiltration [12,16,21]. It appears that the differential infiltration of the anterior pillars and associated with good analgesic results [12,17]. Infiltration must be done pre-emptively because this promotes dissection and reduces preoperative bleeding, especially when an adrenaline solution is used [7,22]. Infiltration of the ton seller lodge is a technique that is not at risk. It can lead to paralysis vocal cords (cerebral palsy) or at a deep cervical abscess. A case of facial paralysis was rapports'. The injection of large volumes, especially directly in the amygdala and if a high concentration of adrenaline is used, may result in a cardiac arrest, given the very rapid systemic absorption [23-26]. The most used local anesthetic is bupivacaine at 0.25 or 0.5%. In this indication, ropivacaine 0.2% is equivalent to bupivacaine 0.25% [5]. Ropivacaine allows analgesia with a longer duration of action than lidocaine [27]. The addition of fentanyl [13] or pethidine [14] to the local anesthetic may be of interest, but this has not been not evaluated comparatively. The use of local anesthetic spray is often recommended and seems effective [11,21] although for one same dose of the spray, the spray is less effective than the injection on the needle [19]. Some teams used neuro stimulation through infiltration needle in the amygdalin lodge in order to ensure the proximity of the glossopharyngeal and to improve the results [28].

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### 4- INFILTRATION FOR THYROID SURGERY

The interest of infiltration of the thyroidectomy scar has been evaluated [29-32]. The injection of 10 mL of bupivacaine 0.5%, or 10 mL of procaine 0.75%, decreases the intensity painful on the first hours postoperative. The benefit can last up to 24 hours. Recourse to opioids over the first 24 hours postoperative is reduced (0% versus 25% in the work of Bagul et al [29], 30% versus 90% in the work of Gozal et al. [31]). The Morphine consumption is significantly reduced in First 24 hours postoperative. This infiltration does not have impact on the quality of healing. Addition from an NSAID to local anesthetic improves efficacy and analgesic duration (Table 3) [32]. Only one study found a negative result after injection 20 mL of 0.25% bupivacaine [30]. It is possible that the concentration used in this work was in sufficient. The superficial cervical plexus block is similar to infiltration technique at a distance from the scar. In contrary to simple cicatrice infiltration, it can be done in preoperative. Its interest in analgesia after thyroidectomy has been evaluated in five studies [30,33-36]. Three studies report positive results [33-35], including one with the association of a deep cervical plexus block, which comes out from the field of simple infiltration. In these studies, the block of superficial cervical plexus with 10 to 20 mL of bupivacaine 0.25% or ropivacaine 0.5% provides a analgesic benefit of up to 24 hours, with reduced use and consumption of opioids on the first 24 hours postoperative. Negative studies can be related to either a infiltration technique in two injections (whereas the usual technique uses three injections) [36], ie use of a concentration of 0.25% in bupivacaine, which seems insufficient [30]. The superficial cervical plexus block is not associated with a specific comorbidity. It does not increase the incidence of postoperative recurrent paralysis (Table 4) [34].

### 5- INFILTRATION IN THORACIC SURGERY

The unique needle infiltration on the scars of thoracotomy was not evaluated. In arthroscopic

surgery, infiltration of trocar sites with bupivacaine 0.5% would significantly reduce pain shells only significant on day 7 [37]. This remains at confirm and can not be considered at this time as a justification for this technique.

#### 6- CONCLUSION

Compared with bupivacaine, ropivacaine is of interest to have a less marked vasodilator effect [82], allowing a longer persistence at the site of the injection and a more consistent blood uptake and a threshold of toxicity higher system level. In single infiltration the dose recommended maximum of ropivacaine is 225 mg, corresponding to 30 mL of the 0.75% form. This dose has a good margin of safety against the thresholds of systemic toxicity. After 375 mg of ropivacaine administered in a hernia repair scar, the maximum peak concentration, for the free form is 0.15 0.06 mg / L, while the neurotoxicity threshold is between 0.34 and 0.85 mg [84]. After cicatrice injection, the peak plasma concentration is between 30 and 60 minutes, which shows slow absorption. As the absorption is slower than that of bupivacaine, because of a less marked vasodilator effect, the concentration peak sequestration is lower after ropivacaine than after bupivacaine after injection of an equivalent dose.

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